

Supply Chain Management Tower Summary

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Supply Chain Management Summary

Supply Chain Management in the Commonwealth is a function that impacts all agencies. This function encompasses the acquisition of goods and services and the subsequent tracking and management of certain procured assets and resources. Supply Chain Management is critical to the core business of certain agencies such as the acquisition and tracking of road maintenance materials for Transportation and is simply one of many administrative functions in other agencies.

The process for all acquisitions is governed by the Virginia Public Procurement Act (VPPA) and the associated policies are governed by the Virginia Information Technologies Agency (VITA) for all “in scope” Information Technology (IT) acquisitions and by the Department of General Services (DGS) for all remaining goods and services. The only central governance for inventory control is the requirement to report annual inventory balances to the Department of Accounts for inventories that exceed \$1 million dollars at year-end.

The goods and services acquisition process is highly decentralized but very prescriptive due to the governance model. Agencies typically have a \$50,000 delegated purchase authority (DPA) for goods and an unlimited delegation for non-IT services. Acquisitions within an agency’s DPA can be completed by the agency by following the VPPA and related VITA/DGS policies. Acquisitions that exceed an agency’s DPA will be initiated by the agency but will be completed by either VITA or DGS depending upon the goods and/or services that are requested. A small purchase charge card is also utilized by most agencies to facilitate acquisitions up to \$5,000. Additionally, a “Gold Card” purchase card program allows agencies to pay for acquisitions up to \$50,000. The Commonwealth’s electronic procurement system, eVA, provided an enterprise-wide approach to the decentralized procurement environment. It enables the Commonwealth to obtain enterprise-wide visibility over the approximately \$5 billion in purchases. This visibility permits the state to leverage its buying power.

The inventory control process is also highly decentralized in the Commonwealth. Inventory policies and procedures vary widely throughout the Commonwealth. In some cases an agency has defined an agency-wide set of policies and procedures while in other cases the policies and procedures vary within divisions/departments in an agency. We also found that in some instances an agency has evolved their inventory control processes to also manage equipment, fixed assets, and/or personally-assigned equipment.

The following activities have been reviewed by the Due Diligence teams:

- **Goods acquisition.** All activities related to the procurement of physical goods, products, and capital assets to be used by state government.
- **Services acquisition.** All activities related to the procurement of services, and the oversight and/or management of contractors and service providers.

- **Inventory control.** All activities related to tracking procured assets and resources, including maintaining information that identifies the quantity, quality and location of procured assets and resources.¹

All agencies have the need to procure goods and services as part of their normal operations. Most agencies have staff assigned to perform the goods and services acquisition function. In a smaller agency this function may be one of many assigned to a single individual where larger agencies have an entire staff dedicated to goods and services acquisition. In at least a few cases agencies have elected to have another agency perform the goods and services acquisition function on their behalf. A number of agencies also need a formal inventory control function to manage their inventories. The staffing levels associated with inventory control for an agency vary based on the number and size of the inventories being managed.

The survey responses indicate that goods and services acquisition account for approximately 57% of the Supply Chain Management function from both a FTE perspective as well as a total cost perspective. Almost all of the staff performing the goods and acquisition function is Commonwealth personnel while nearly half of the staff performing the inventory control function is external resources. These data are summarized in Exhibit 1 and Exhibit 2 below.

¹ Capital construction acquisition was specifically excluded from this review.

Exhibit 1 Commonwealth Supply Chain Management Resources

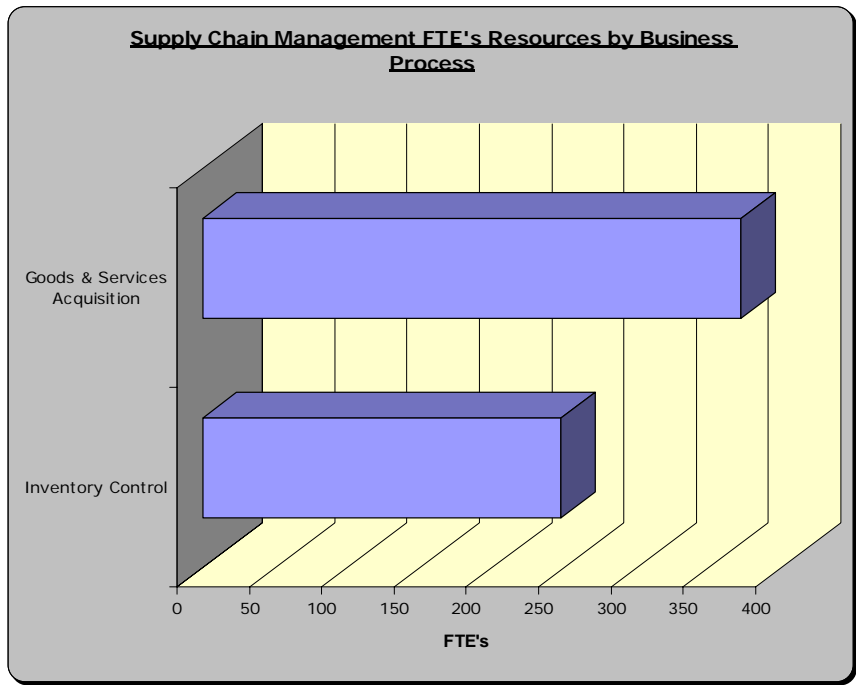


Exhibit 2 Utilization of Contractors in Supply Chain Management

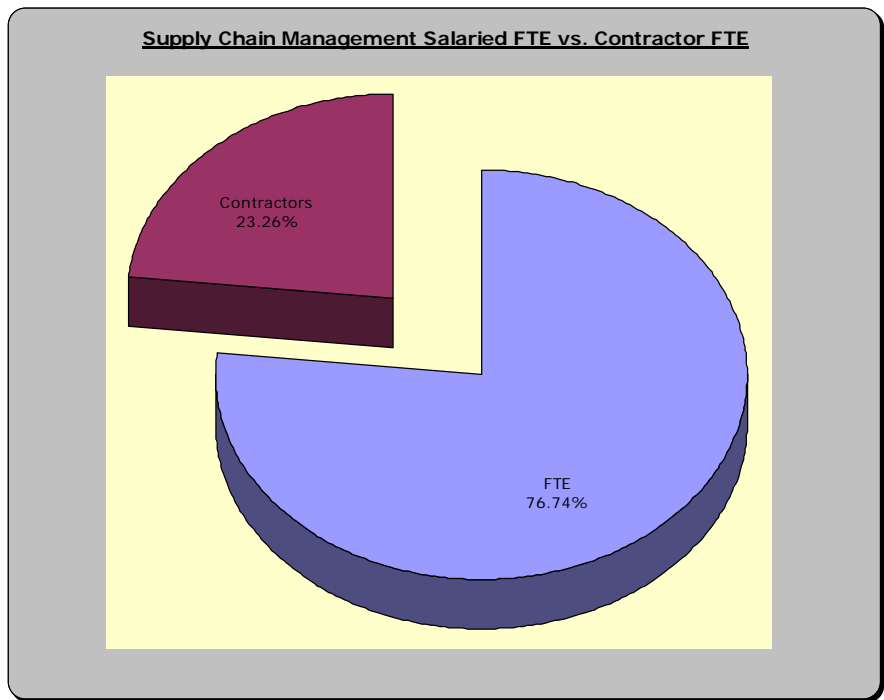


Exhibit 3 provides a distribution of costs for the processes which compose Supply Chain Management. Exhibit 4 provides an integrated summary of financials and resources as reported by agencies participating in our survey.

Exhibit 3 Costs for Supply Chain Management processes

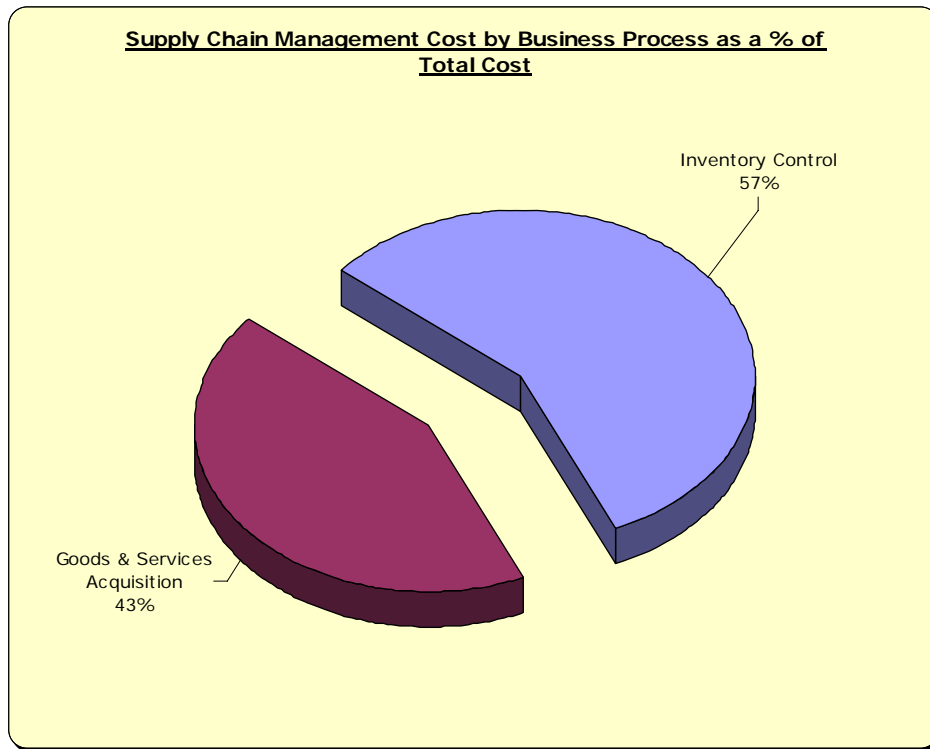
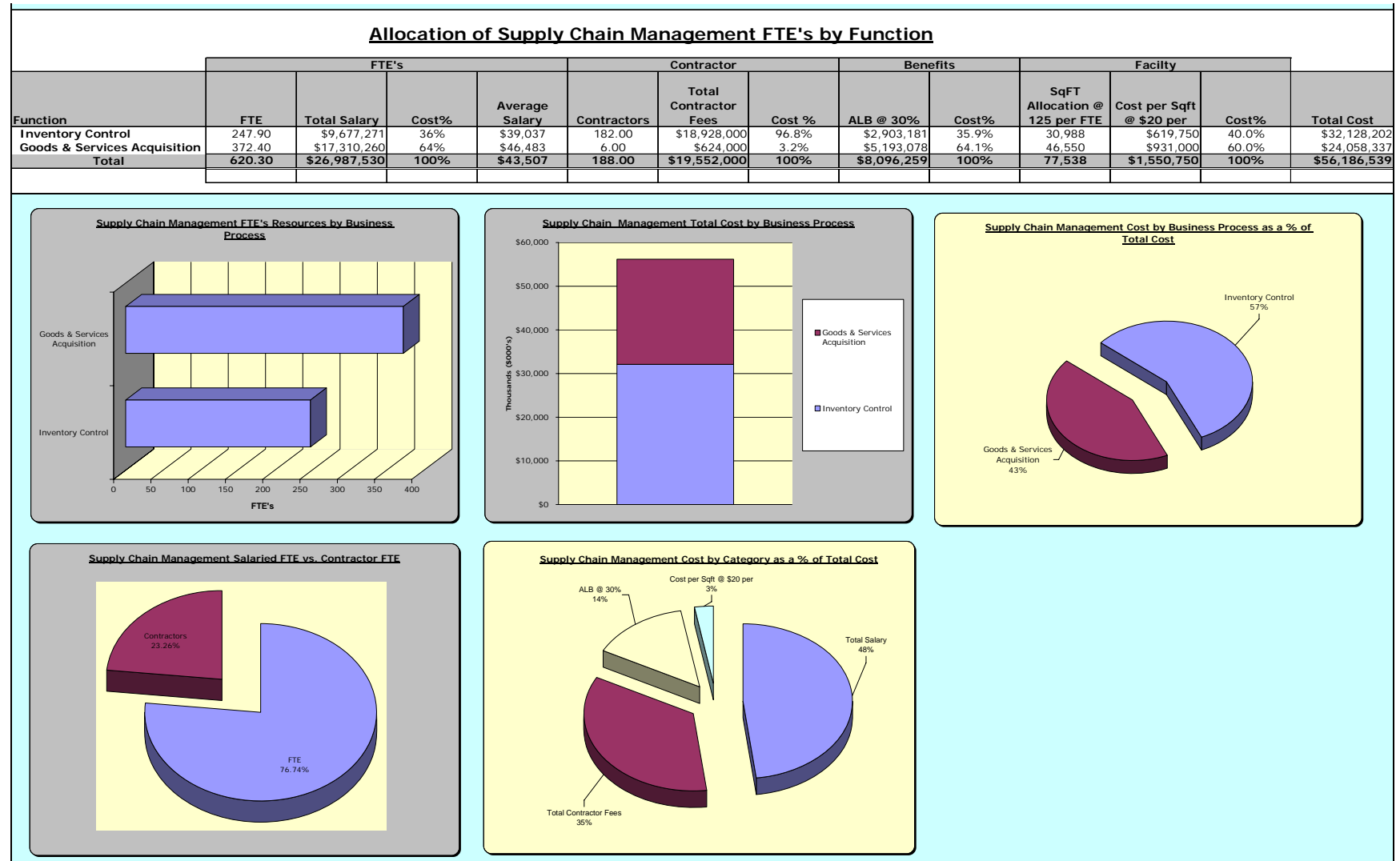


Exhibit 4 Integrated Financials for Supply Chain Management

Supporting Technology. The Department of General Services operates the only central system (eVA) that supports the supply chain management environment. This system is focused on the Goods and Services Acquisition functions. DGS reported that approximately one third of the agencies had significant investments in other acquisition solutions (e.g. ERP systems) prior to the implementation of eVA. Many of these agencies continue to use their existing agency systems and related processes to perform the goods and services acquisition function. All agencies are required to process the majority of their acquisition activity through eVA so agencies that have chosen to use an existing agency system interface their acquisition orders into eVA on a daily basis. This facilitates a common channel for vendors to receive orders and aggregates of the total Commonwealth spend in a single system which positions the Commonwealth to better leverage its total buying power.

The Commonwealth does not have a central inventory management system. Rather, agencies have invested in a variety of applications to track and manage inventory. In some cases agencies utilize the inventory management component of an integrated ERP suite while in other cases an agency maintains a separate inventory management system. The separate inventory management systems range from COTS applications to custom systems to locally maintained spreadsheets or databases. These separate systems may or may not be integrated with other agency administrative management systems such as financial management, acquisitions, and asset management. In addition, there is no visibility into inventory across agencies.

The following technology applications have been identified in our foundation interviews and by the survey respondents as tools that support the supply chain management environment.

- ERP/Financial Management Systems
- Procurement Systems
- Contract Management Systems
- Inventory Management Systems

Goods and Services Acquisitions (441.10 and 441.40)

Goods acquisition involves all activities related to the procurement of physical goods, products, and capital assets to be used by state government. Services acquisition involves all activities related to the procurement of services, and the oversight and/or management of contractors and service providers.

Goods and services acquisition in the Commonwealth is a highly decentralized function and includes all acquisitions from a simple purchase made with a small purchase charge card to multi-million dollar multi-year services outsourcing contracts. These acquisitions are governed by the Virginia Public Procurement Act (VPPA). The Virginia Information Technologies Agency (VITA) is responsible for procurement policy and support for all “in scope” Information Technology (IT) acquisitions. The Division of Purchases and Supplies (DPS) within the Department of General Services (DGS) is responsible for procurement policy and support for all remaining goods and non-professional services acquisition.² In general, most agencies have a delegated purchase authority (DPA) of \$50,000 for goods purchases. Agencies also have a \$50,000 DPA for “in scope” IT services and an unlimited delegation for non-VITA non-professional services acquisitions.

As-Is Environment: Strengths

- **Enterprise-wide procurement system (eVA).** eVA is used as the primary procurement tool by a number of agencies in the Commonwealth. This includes agencies that have other agency specific systems (e.g. ERP systems) as well as agencies that do not have another system. eVA is used by 171 Commonwealth agencies and institutions of higher education and over 475 local government entities. The Commonwealth realized \$69M in savings through the use of eVA in FY04.
 - **Provides an enterprise-wide procurement solution that encompasses the requisition to receiving process and provides informal and formal solicitation and contract management functionality.** All agencies are required to send the majority of their procurement orders to the vendor through eVA whether or not they use eVA as their procurement tool.
 - **Provides an enterprise-wide repository for tracking and reporting procurement related activities.** The consolidated information in eVA equips procurement professionals throughout the Commonwealth to better leverage the Commonwealth buying power through new contracts or renewals of existing contracts.
 - **Central repository for Commonwealth business opportunities.** eVA provides a central repository of business opportunities in the Commonwealth that allows the vendor community to consult a single source of information when looking for new business opportunities. In addition, eVA provides automatic email notification of new business opportunities to vendors that register for premium service in eVA.

² The Bureau of Capital Outlay Management within the Department of General Services is responsible for construction policy and procedures. The Virginia Department of Transportation is responsible for road construction policy and procedures. These acquisition activities were excluded from this review.

- **Strategic sourcing.** The Commonwealth has further reduced the costs of certain goods and services through strategic sourcing initiatives. Strategic sourcing was first introduced in DPS through the Virginia Partners in Procurement (VAPP) initiative. In addition, VITA has included strategic sourcing in their overall procurement strategy. The Commonwealth estimates that they will achieve over \$30M in savings from VAPP strategically sourced contracts in FY05.

As-Is Environment: Weaknesses

- **Multiple procurement systems.** Many agencies use redundant agency specific systems (e.g. ERP systems) to perform their procurement function. Agency procurement orders are then interfaced to eVA for electronic order delivery and to facilitate enterprise-wide reporting. Commonwealth agencies operate many ERP and/or procurement systems in addition to eVA. See the *Technology Resources* area in the *As-Is Environment: Resources Required* section below for a partial listing of the additional systems currently in use.
- **Lack of integration.** Although eVA provides the capability, agencies vary in the degree of integration with the system. Additionally, eVA does not currently interface with CARS or other agency specific systems such as inventory, equipment, and fleet management systems.
- **SWAM requirements and reporting.** Agencies find it difficult and time consuming, particularly for purchases less than \$5,000, to identify certified SWAM vendors and to obtain the required number of quotes from SWAM vendors. In addition, the SWAM compliance reporting is often an intensive manual process. Agencies consistently commented on the lack of certified SWAM vendors and on the lack of current statewide contracts with certified SWAM vendors. SWAM reporting is left to each agency and often involves significant manual work rather than being an automated central process.
- **New initiatives.** Agencies are constantly challenged to keep staff educated on and comply with new and sometimes competing initiatives. Parallel initiatives can also introduce inefficiencies in the procurement process. For example, agencies find it inefficient to utilize their small purchase charge cards (i.e. procurement card) when they are required to enter these transactions in eVA. Additionally, agencies do not always see the value in new initiatives. This is especially true when a new initiative has a business model that directly impacts the agencies. Examples of this include the VITA surcharge for IT acquisitions and the eVA transaction fee.
- **Multiple vendor registration processes.** A vendor is often faced with multiple systems and processes when registering to do business with the Commonwealth. At a minimum, a vendor is directed to register in eVA. SWAM vendors must also certify with the Department of Minority Business Enterprises (DMBE). Certain agencies also maintain their own vendor registration process. These multiple processes make it time consuming, costly, and at times difficult, to get vendors to register to do business with the Commonwealth.
- **Qualified procurement personnel.** Agencies report that it is difficult to identify, attract and retain qualified procurement personnel. Agencies have also identified a need for improved training of existing personnel for both the procurement technologies and processes, particularly when new initiatives are introduced (e.g. eVA, VITA, SWAM). The Commonwealth procurement profession is facing an aging workforce. Agencies also have many vacant positions which they have had difficulty filling. The Department of General Services operates a statewide education initiative that is targeted to the procurement

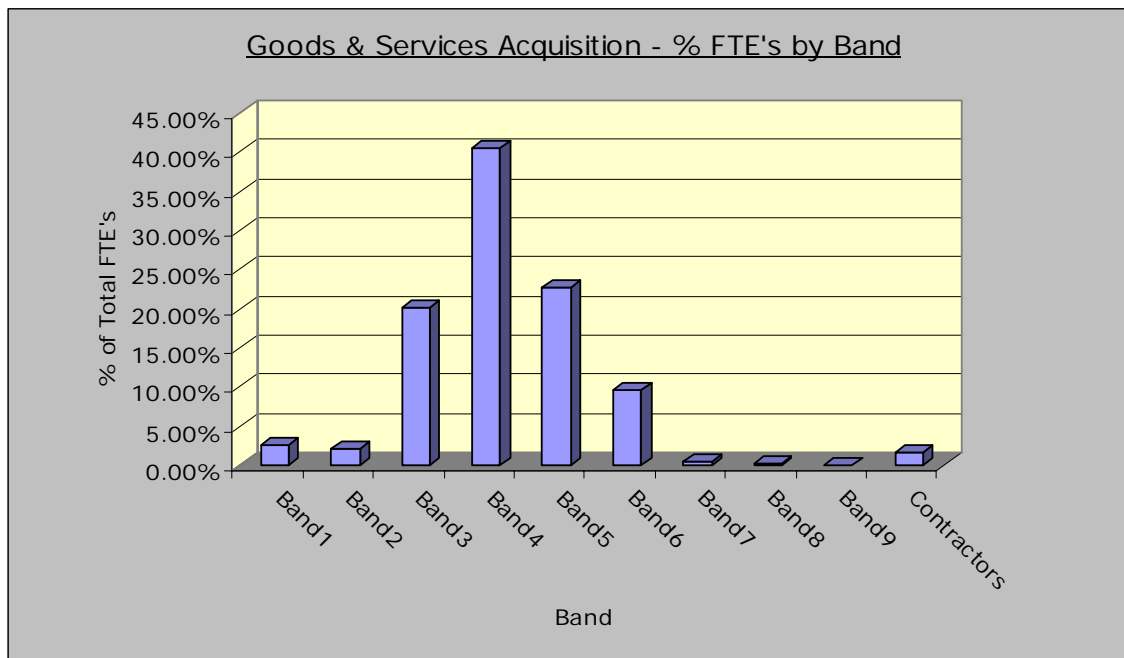
community. However, agencies consistently identified the need for additional training on both procurement technologies and processes.

As-Is Environment: Resources Required

Human Resources

The majority of state employees engaged in the goods and services acquisition function fall within salary bands 3 through 6. More than half of Commonwealth employees fall within in band 4, as shown in Exhibit 5 below. The quantity of FTEs dedicated by each agency to the goods and services acquisition function is highly variable. This variability reflects the organizational structure (centralized vs. decentralized) as well as the size and complexity of the agency.

Exhibit 5 *Goods and Services Acquisition Resources*



Virtually every agency performs some elements of the Goods & Services Acquisition Process. Exhibit 6 summarizes the distribution of resources engaged in this process by agencies that participated in our survey. VDOT had the largest investment of personnel performing the goods and services acquisition function. As shown in Exhibit 7, contractors play an insignificant role in supporting this process.

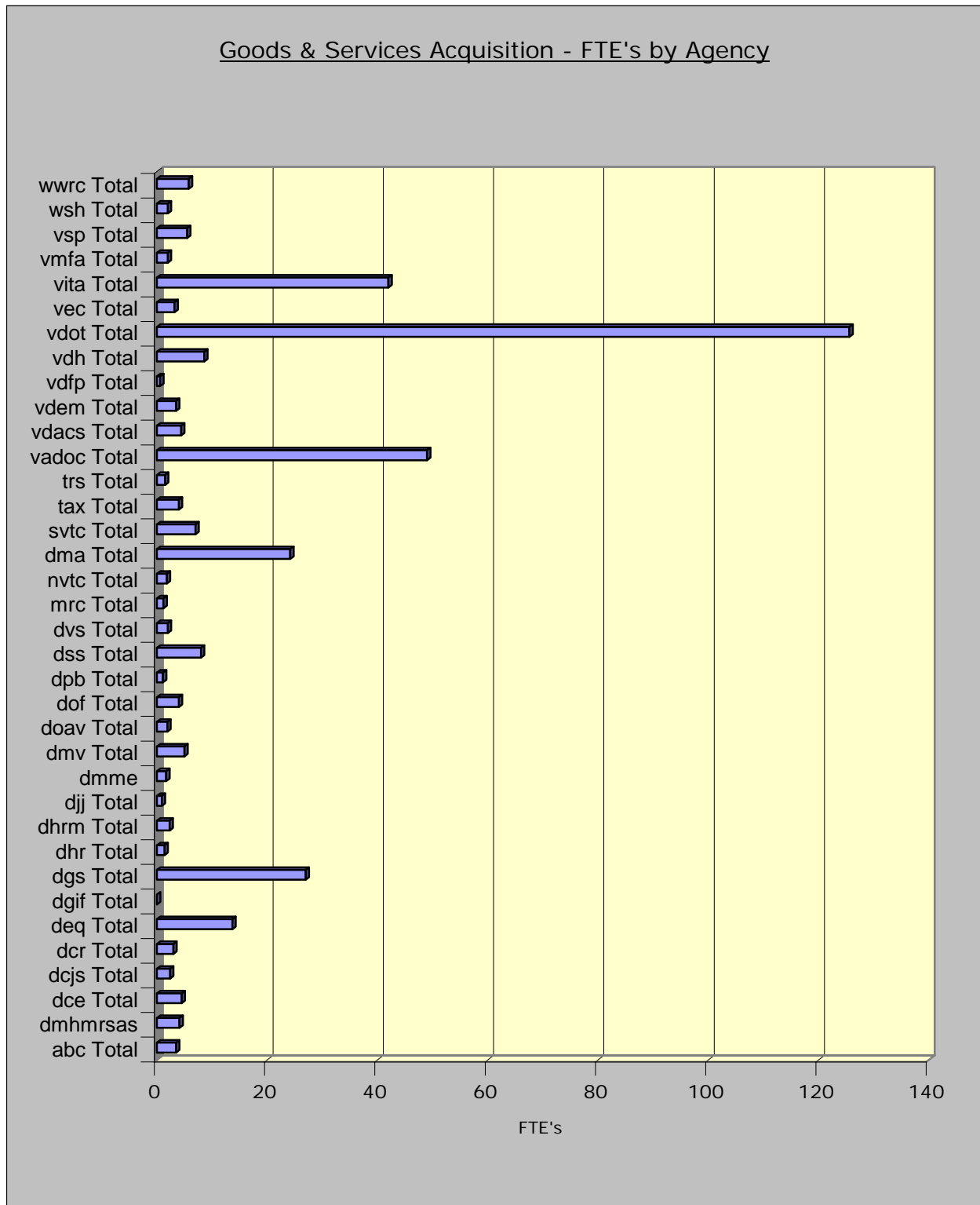
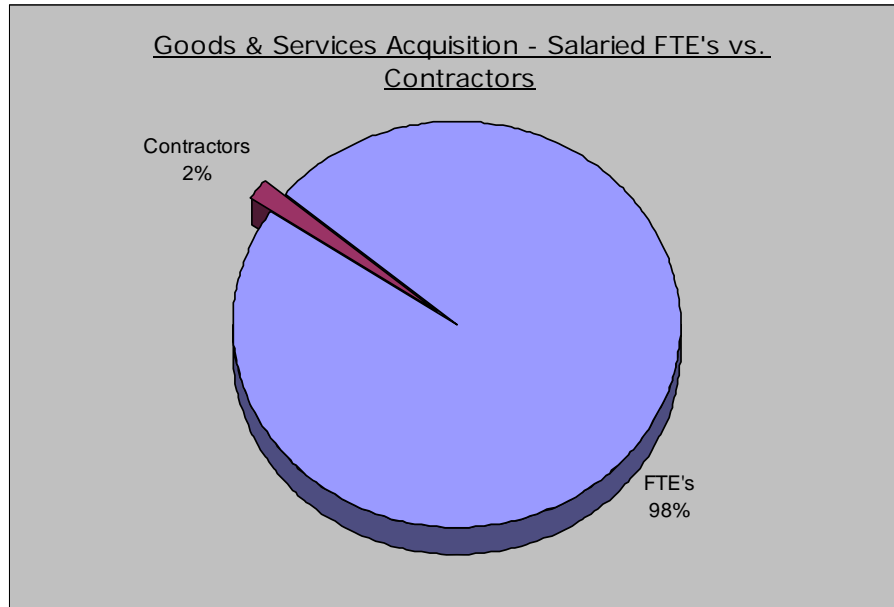
Exhibit 6 Distribution of Goods & Services Acquisition Resources by Agency

Exhibit 7 Utilization of Contractors In Goods & Services Acquisition**Technology Resources**

eVA is the central procurement system operated by the Department of General Services. This system is utilized by many Commonwealth agencies. However, several agencies use agency specific systems to perform their procurement function. The list below is a representative sample of the additional systems that are used to support the procurement function in the Commonwealth. Some of these systems are outdated or obsolete.

- Peoplesoft
- Oracle Financials
- Syteline
- AASHTO'S TRNS*PORT
- PCD (Procurement and Contracts Division)
- Microsoft Access

To-Be Preliminary Assessment

The foundation interviews and the survey responses identified several opportunities for improvement in the Goods and Services Acquisition process. The following section includes recommended improvements that were consistently made throughout the due diligence phase.

Commonwealth Recommendations

- **Invoice/payment functionality.** Agencies that use eVA as their primary procurement system would benefit from an invoice function and associated three-way match process that

would ultimately generate a payment request to CARS. In addition, agencies that do not currently have an automated three way match process could also benefit from this solution.

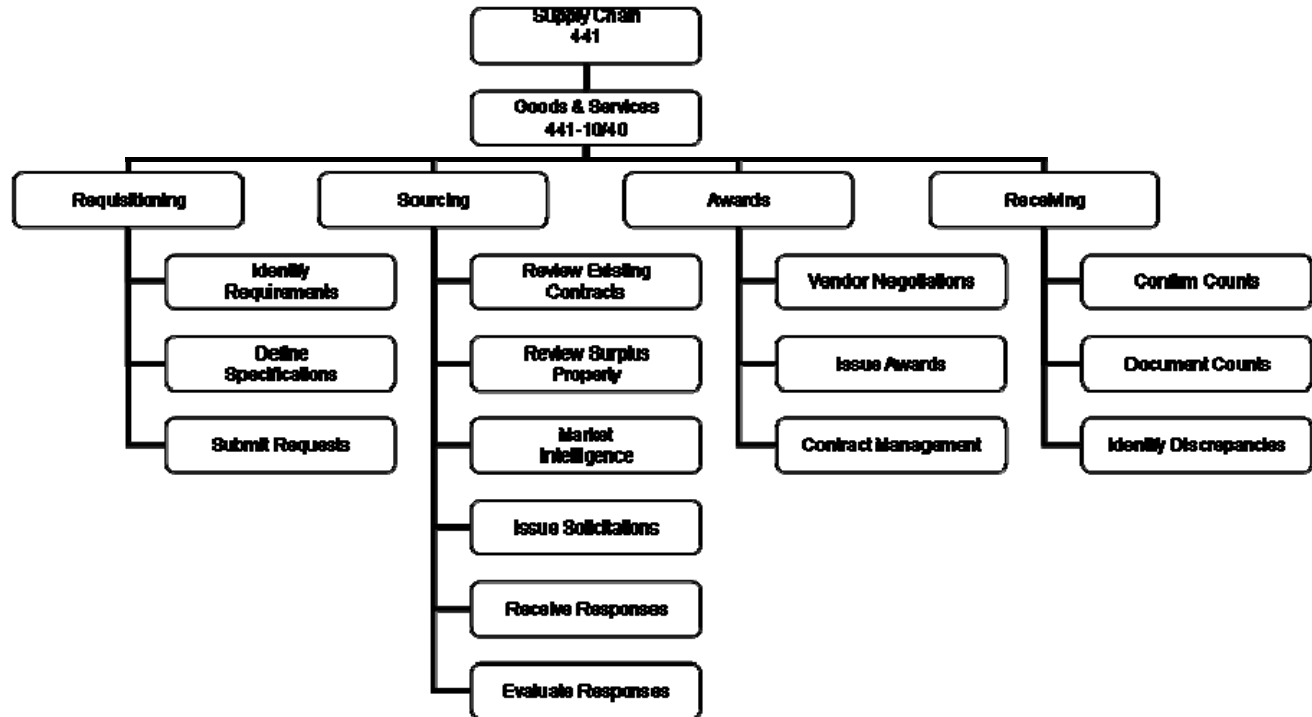
- **SWAM compliance reporting.** Provide an automated standard reporting process that can be used by all agencies to report SWAM compliance. The standard reporting should access a common data store such as eVA but should include flexibility to include additional information that may not be present in the common data store.
- **Central vendor registration.** Vendors and agencies would benefit from a central vendor registration process. eVA provides an enterprise-wide vendor registration capability. However, it is not universally used. Ideally, the central process would capture the registration information needs of all interested parties in the Commonwealth (e.g. DOA, DMBE, VITA, DGS, individual agencies). The new process would likely include multiple approval steps to accommodate the needs of the various central agencies (e.g. DOA, DMBE, VITA, DGS). The new process should capture all of the registration information in a central repository and make it readily available to other systems throughout the Commonwealth.

Consistency with Best Practices

The recommendations above are all consistent with best practices. The first item describes the consolidation of functionality into a single system and also introduces a new automated function to assist with three way matching. The second item recommends the implementation of a standard repeatable process for reporting and the final item recommends a single standard process for registration

Business Process Decomposition

The Goods and Services Acquisition Process is composed of several sub-processes. These sub-processes are outlined in Exhibit 8.

Exhibit 8 Business Process Decomposition

Survey Results

Appendix C provides a set of two summary reports per business function studied in Supply Chain Management. The first report shows response frequencies on questions selected to illustrate trends on particular management practices (these are multiple choice questions, so the results can be aggregated and graphed). The second report shows the set of responses on text questions, so that the range of views is reflected (these questions have responses easily displayed in a list format). The remaining survey questions are in a matrix format best understood in the individual survey response, so they are not included in the aggregate or grouped responses shown in these two reports. To view all responses to every question by survey, please view the reports included on the accompanying CD.

Inventory Control (441.20)

Inventory control involves all activities related to tracking procured assets and resources, including maintaining information that identifies the quantity, quality and location of procured assets and resources.

Inventory management is highly decentralized within the Commonwealth. Each agency, and in some cases, departments have developed their own policies and processes for managing inventories of materials to support their specific mission.

As-Is Environment: Strengths

- **Mission-specific inventory management systems.** Agencies have evolved a variety of manual and automated processes for tracking their inventories. Most agencies have developed their own inventory management systems to support their specific missions. Solutions range from agency-wide systems to locally maintained spreadsheets and databases.
- **Financial controls.** Agencies surveyed have implemented a wide array of controls to help assure the financial integrity of their inventories. Agencies participating in this survey have implemented several types of security and accounting controls to monitor the disposition of inventory. These controls range from annual or semi-annual physical inventories to continuous sampling. These agencies also report the use of various means of controlling physical access to inventory storage areas.

As-Is Environment: Weaknesses

- **No Commonwealth-wide policy for inventory management.** There is no minimum standard or guidance for performing inventory management throughout the Commonwealth. The Commonwealth has promulgated a policy on CAFR requirements for reporting the value of year-end inventory balances. However, there are no other state-wide policies. Most agencies have developed their own management processes, financial controls and reporting requirements for inventory. There is no commonly accepted methodology or approach for controlling inventory.
- **Demand forecasting.** Few agencies with notable inventories have implemented guidelines for forecasting the demand for inventory items. Most agencies participating in the survey report using historical patterns of usage as the basis for ordering materials and maintaining stocks in inventory. A couple of agencies incorporate forecasts of business volume or significant events into their planning process.
- **Stocking levels.** Most agencies participating in the survey tend to stockpile inventory. Inventory is infrequently replenished. Most agencies place a premium on maintaining sufficient stocks of materials to meet their missions than optimizing inventory costs. The most common metric of assessing the inventory management process is the percentage of stock outages. Reorder points and quantities are often based upon local experience or anecdotal forecasts of demand. Less regard is given to actual inventory consumption and turn-over rates.
- **Intermingling of inventory, equipment and custodianship management processes.** We found some instances where agencies are using the same inventory management processes to

control materials, equipment, fixed assets, and personal-assigned equipment. Some agencies over time have used their existing inventory control processes and applications to manage equipment. Some are also using these resources to also manage fixed assets and custodianship of personally-assigned equipment. These processes and systems were not designed with these capabilities in mind. As a result, management requirements are at best, partially supported.

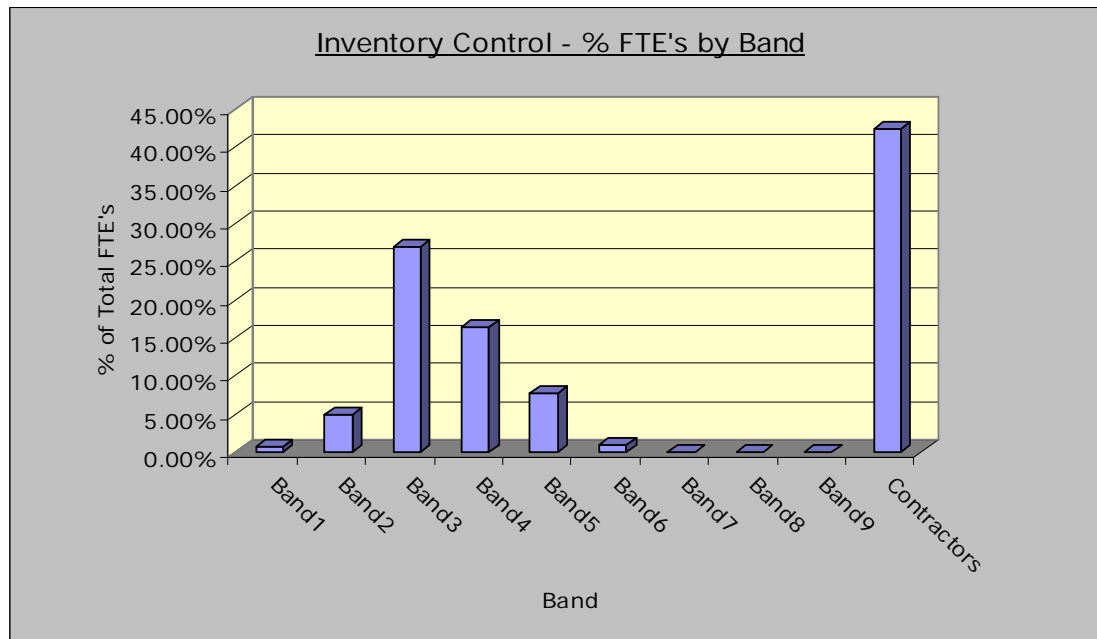
- **Overlapping transportation capabilities.** Agencies that maintain significant inventories have assembled their own truck fleets and distribution networks. In one case, transportation services are outsourced. In all other cases, agencies are maintaining their own transportation capabilities. These range from small fleets of tractors and trailers to smaller box trucks and vans.

As-Is Environment: Resources Required

Human Resources

The majority of state employees engaged in the inventory management function fall within the lower salary bands. The quantity of full time equivalents (FTEs) dedicated by each agency to the inventory management function is highly variable. This variability reflects the organizational structure (centralized vs. decentralized) and the agency's specific mission. Exhibit 9 summarizes the distribution of inventory management personal by salary band.

Exhibit 9 **Inventory Control Resources**



In our survey, VDOT had the largest investment of personnel performing inventory management functions. VDOT also heavily utilizes contractors to support its inventory management operations. No other agency in the survey reported any significant utilization of contractors for

inventory management. Exhibit 10 depicts the distribution of inventory management resources by agency. Exhibit 11 depicts the distribution of resources between contractor and employee labor.

Exhibit 10 *Distribution of Inventory Management Resources By Agency*

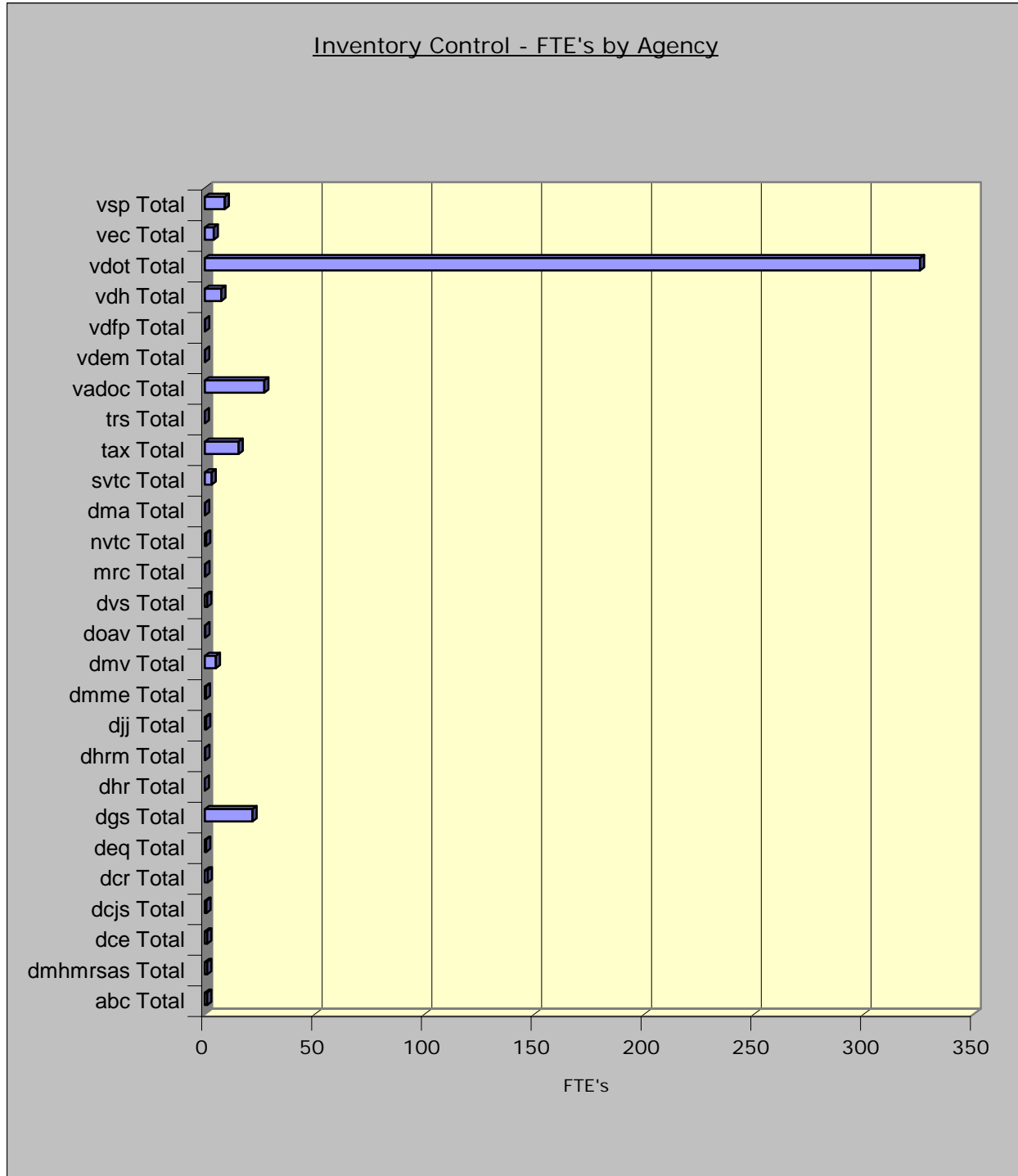
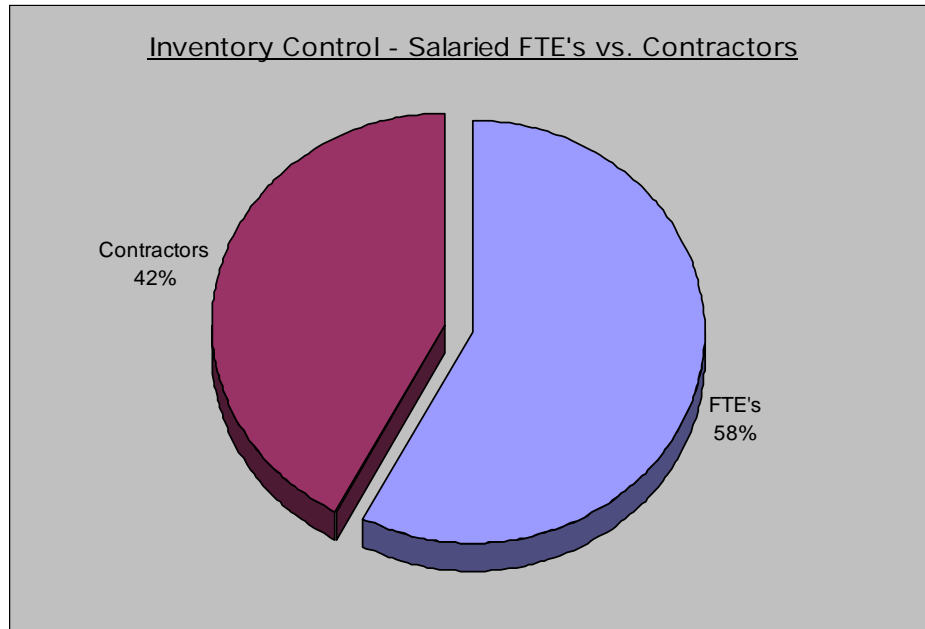


Exhibit 11 Utilization of Contractors in Inventory Management**Technology Resources**

Agencies have invested in a variety of applications to track and manage inventory. These applications range from sophisticated agency-level systems to locally maintained spreadsheets and small databases. Here is a partial list of applications used throughout the Commonwealth:

- Inventory and Product Sales
- Warehouse Management System
- Inventory Tracking System
- Syteline
- Oracle Financials
- FMS
- Perpetual Inventory
- PIPs Inventory
- AFMP
- PaRTS
- WebIMS
- Mapper

Many of the inventory management systems within the Commonwealth are obsolete. In some cases, agencies are even relying upon old unsupported application and database releases. Several agencies reported frustrations with accessing data for reporting and analysis.

Non-general fund agencies and departments are particularly frustrated by the lack of current applications and supporting technologies.

To-Be Preliminary Assessment

The following recommendations were synthesized from the information provided by various agencies during foundation interviews and comments provided in survey responses.

Commonwealth Recommendations

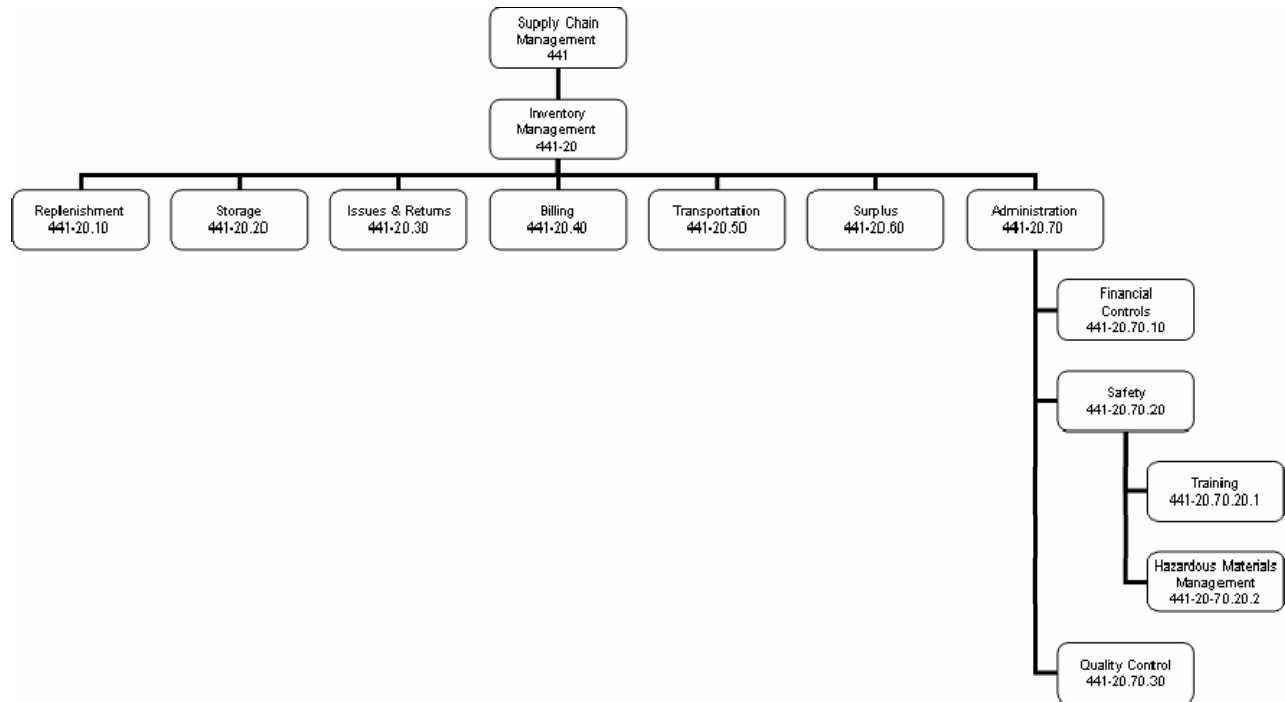
- **Inventory management policy.** The Commonwealth should consider developing a baseline standard policy for inventory management. This policy should mandate a standard set of requirements for agency inventory management practices and processes. Agencies vary widely in the complexity and size of their inventory management responsibilities. It is not prudent to implement a single standardized process standard for all agencies. Instead, the Commonwealth should provide agencies with the baseline requirements to which management processes should conform.
- **Support for enterprise fund departments.** Non-general fund agencies have a common set of business processes; selling, procuring, manufacturing, supplying, etc. The Commonwealth should consider investing in a single platform to support these enterprises. Enterprise fund organizations conduct business as a retailer or manufacturer. They share a common set of high-level functions. Application support for these operations is currently fragmented. In a couple of cases, these operations are dependent upon out of date, unsupported technologies.
- **Shared transportation and distribution resources.** The Commonwealth should investigate sharing trucking, storage and distribution networks among agencies. Major agencies have developed their own trucking fleets and distribution networks. There are redundancies in geographic coverage. Although not specifically investigated, we also believe that some transportation resources are underutilized. The Commonwealth should investigate the benefits of sharing existing warehouse and storage space among agencies that maintain similar types of inventories.

Consistency with Best Practices

The recommendations for improving the inventory management process are consistent with industry trends and best practices. The suggested points for improvement revolve around three areas; implementing a policy that establishes a minimum standard for this process, improving the application support for enterprise fund organizations, and leveraging resources to benefit multiple agencies.

Business Process Decomposition

The Inventory Management process is composed of several sub processes, as depicted in Exhibit 12.

Exhibit 12 Business Function Decomposition

Survey Results

Appendix C provides a set of two summary reports per business function studied in Supply Chain Management. The first report shows response frequencies on questions selected to illustrate trends on particular management practices (these are multiple choice questions, so the results can be aggregated and graphed). The second report shows the set of responses on text questions, so that the range of views is reflected (these questions have responses easily displayed in a list format). The remaining survey questions are in a matrix format best understood in the individual survey response, so they are not included in the aggregate or grouped responses shown in these two reports. To view all responses to every question by survey, please view the reports included on the accompanying CD.